

Appl. No. 10/629,030
Examiner: YOUNG, CHRISTOPHER G, Art Unit 1756
In response to the Office Action dated June 22, 2005

Date: September 22, 2005
Attorney Docket No. 10112601

REMARKS

Applicant thanks the Examiner for acknowledging Applicant's claim to foreign priority and receipt of the certified copy of the priority document. Responsive to the Office Action mailed on June 22, 2005 in the above-referenced application, Applicant respectfully requests amendment of the above-identified application in the manner identified above and that the patent be granted in view of the arguments presented. No new matter has been added by this amendment.

Present Status of Application

Claims 1-5 are rejected under 35 U.S.C 102(e) as being anticipated by Bode et al (U.S. Patent No. 6,737,208). Claims 1-5 are rejected under 35 U.S.C 102(e) as being anticipated by Jones et al (U.S. Patent No. 6,815,232).

In this paper, claim 1 is amended to incorporate the limitations of claim 3. Claims 1, 2 and 4 are amended to correct informalities. Claim 3 is canceled. Withdrawn claims 6-10 are canceled in favor of a divisional application.

Reconsideration of this application is respectfully requested in light of the amendments and the remarks contained below.

Rejections Under 35 U.S.C. 102(e)

Claims 1-5 are rejected under 35 U.S.C 102(e) as being anticipated by Bode et al. Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Jones et al. The rejections are traversed for the reasons as follow.

To anticipate a claim, a reference must teach every element of the claim. In this regard, the Federal Circuit has held:

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

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"The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

As amended, claim 1 incorporates the limitations of original claim 3. As such, claim 1 recites an exposure system with group compensation comprising:

... a lot classification database to record a group classification of at least one lot of wafers, in which the group classification is determined according to a device and a mask used in a front-end process; and

a compensation unit to obtain the group classification of the lot of wafers from the lot classification database, retrieve a group compensation value according to the group classification, and compensate at least one overlay parameter according to the group compensation value ...

As discussed in the specification of the present application, the device and mask used for exposure in a front-end process will affect the compensation for overlay parameters in back-end processes. However, in conventional systems such as those disclosed by Bode et al and Jones et al, ***the device and mask used for exposure in the front-end process are not considered.*** This leads to unreliability of the compensation calculation, raising the rework rate and decreasing the throughput of the manufacturing process.

In contrast, in the claims of the present invention, ***lots of wafers are classified into groups based on devices and masks used in a front-end process, and different compensation values are used for respective groups for compensation.***

The rejections of claims 1-5 are believed to be insufficient, insofar as they do not comply with the requirements of MPEP 707.07 et seq., which requires that all rejections be stated with completeness and clarity.

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In the rejections over Bode et al and Jones et al, the Office action makes a general statement that the references teach and suggest all the claim limitations of the instant application, and then proceeds to paraphrase a large portion of each reference's teaching without clearly pointing out which part of the respective disclosures is believed to anticipate which element of the claimed invention.

Furthermore, the limitations of the dependent claims are not addressed even in passing. For example, nowhere in the Office action does it clearly point out where in Bode et al or Jones et al it is taught that an exposure system comprises a lot classification database to record a group classification of at least one lot of wafers, ***in which the group classification is determined according to a device and a mask used in a front-end process***, as recited in original claim 3 (now claim 1). This limitation is simply not addressed in the office action.

As the office action fails to state with completeness and clarity any teaching or suggestion of at least the limitations noted above, Applicant submits that the rejection of claim 1 (which incorporates the limitations of original claim 3) should be withdrawn. Should an ensuing office action be mailed which provides new grounds for the rejection of claims 1-2, 4-5 remaining in the application, such an ensuing office action should be made non-final.

The Office action mischaracterizes in the teaching of Bode et al in the rejection of original claim 3 (now claim 1).

Furthermore, to the extent that the Office action argues that Bode et al teach or suggest all the claim limitations of original claims 1-5, it is Applicant's belief that Bode et al's teaching is mischaracterized. Namely, Bode et al teach an exposure system with feed forward and feedback capability. Col. 6, lines 34-40 of Bode et al read:

... the controller 140 may determine control actions for individual wafers or for lots of wafers. If control is performed on a lot level, the feed forward overlay error data may be associated with one or more wafers in the lot that were measured. If control is

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performed on a wafer level, each wafer may have an associated feed forward overlay error measurement.

Thus, Bode et al teach that the data set of overlay error data from previous layers may be based on wafer level or lot level. That is, on the lot level, the overlay error data from previous layers of wafers in a lot is used for determining overlay settings for the stepper for a current layer of one or more processed wafers. On the wafer level, the overlay error data from previous layers of a given wafer is used for determining overlay settings for the stepper for a current layer of the processed wafer.

There is simply no teaching in Bode et al of a lot classification database to record a group classification of at least one lot of wafers, *in which the group classification is determined according to a device and a mask used in a front-end process*, as recited in claim 1.

The Office action further mischaracterizes in the teaching of Jones et al in the rejection of original claim 3 (now claim 1).

As with Bode et al, it is Applicant's belief that Jones et al's teaching is mischaracterized. Namely, Jones et al also disclose an exposure system in which the data set of overlay error data from previous layers may be based on wafer level or lot level. On the lot level, the overlay error data from previous layers of wafers in a lot is used for determining overlay settings for the stepper for a current layer of one or more processed wafers. On the wafer level, the overlay error data from previous layers of a given wafer is used for determining overlay settings for the stepper for a current layer of the processed wafer.

There is simply no teaching in Jones et al of a lot classification database to record a group classification of at least one lot of wafers, *in which the group classification is determined according to a device and a mask used in a front-end process*, as recited in claim 1.

For at least the reasons described above, it is Applicant's belief that both Bode et al and Jones et al fail to teach or suggest all the limitations of claim 1. Applicant therefore respectfully requests that the rejection of claim 1 be withdrawn and the claim passed to issue. Insofar as

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claims 2 and 4-5 depend from claim 1 either directly or indirectly, and therefore incorporate all of the limitations of claim 1, it is Applicant's belief that these claims are also in condition for allowance.

Conclusion

The Applicant believes that the application is now in condition for allowance and respectfully requests so.

Respectfully submitted,



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